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8.  $y'_x = f(x)y^2 + ay - ab - b^2f(x)$ .

**Riccati equation, special case 2.**

Particular solution:  $y_0 = b$ .

The general solution can be written as:

$$y = b + \Phi(x) \left[ C - \int f(x)\Phi(x) dx \right]^{-1}, \quad \text{where } \Phi(x) = \exp \left\{ ax + 2b \int f(x) dx \right\}$$

$C$  is an arbitrary constant.

### Reference

**Polyanin, A. D. and Zaitsev, V. F.**, *Handbook of Exact Solutions for Ordinary Differential Equations, 2nd Edition*, Chapman & Hall/CRC, Boca Raton, 2003.

Riccati Equation, Special Case 2

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